

(1) WHAT IS CLAIMED IS:

1      1. A nicotine-impermeable container for  
2      therapeutic doses of nicotine, comprising:

3            a) a housing formed of nicotine-impermeable  
4            material;

5            b) a nicotine carrier in the housing for  
6            holding a measured amount of nicotine in a form  
7            which will allow said nicotine to migrate from the  
8            carrier when not completely encapsulated in the  
9            housing;

10          c) said nicotine-impermeable housing  
11          including a nicotine-impermeable seal for  
12          encapsulating the nicotine carrier and sealing it  
13          from the atmosphere;

14          d) said housing including at least one  
15          portion accessible to the carrier for exposing said  
16          nicotine carrier to the atmosphere for  
17          administration of a therapeutic dose of nicotine  
18          when said portion is penetrated or removed.

1      2. The nicotine-impermeable container of claim 1,  
2      wherein the nicotine carrier comprises a porous polymer  
3      plug charged with a nicotine free-base.

1      3. The nicotine carrier of claim 2, wherein the  
2      porous plug is formed of polythene.

1      4. The nicotine-impermeable container of claim 1,  
2      wherein the nicotine-impermeable housing includes a  
3      permanent portion.

1      5. The nicotine-impermeable container of claim 1,  
2      wherein said portion accessible to the carrier is a  
3      selectively penetrable portion attached to the permanent  
4      portion by means of a nicotine-impermeable seal.

5       6. The nicotine-impermeable container of claim 1,  
1       wherein the nicotine-impermeable housing comprises  
2       forming said housing of a copolymer of acrylonitrile and  
3       methyl acrylate.

4       7. The nicotine-impermeable container of claim 1,  
1       wherein the portion accessible to the carrier is formed  
2       of aluminum foil coated with a copolymer of acrylonitrile  
3       and methyl acrylate.

4       8. The nicotine-impermeable container of claims 6  
1       and 7, wherein the coating of copolymer of acrylonitrile  
2       and methyl acrylate is heat sealed to the housing.

9. The nicotine-impermeable container of claim 1,  
wherein the sealed internal portion of the nicotine-  
impermeable housing is oxygen-free.

1       10. The nicotine-impermeable container of claim 9,  
2       wherein the sealed internal portion of the nicotine-  
3       impermeable housing is filled with inert gas.

1       11. The nicotine-impermeable container of claim 10,  
2       wherein said inert gas is nitrogen.

1       12. A cartridge for a nicotine inhaler, comprising:  
2       a) a cartridge housing;  
3       b) a passageway in said cartridge housing;  
4       c) a nicotine reservoir in said passageway  
5       for holding a measured amount of nicotine in a form  
6       that will allow nicotine vapor to be released into a  
7       fluid stream passing around or through the  
8       reservoir;  
9       d) said passageway comprising at least two  
10      openings communicating outside said housing for  
11      allowing a fluid stream to pass through said  
12      passageway; and

13  
14 e) said nicotine reservoir being sealed from  
15 the atmosphere by a nicotine-impermeable barrier  
16 which includes passageway barrier portions for  
17 sealing the passageway on both sides of the  
18 reservoir, at least said passageway barrier portions  
19 being penetrable for opening said passageway to the  
atmosphere.

1 13. The cartridge of claim 12, wherein the  
2 cartridge housing is an elongated member, the passageway  
3 being defined by the inner surface of the member and the  
4 passageway openings being located on opposite ends of the  
5 member.

1 14. The cartridge of claim 13, wherein the  
2 elongated member is cylindrical in shape.

1 15. The cartridge of claim 12, wherein the nicotine  
2 reservoir comprises a porous polymer plug charged with  
3 nicotine free base.

1 16. The cartridge of claim 15, wherein the porous  
2 plug is formed of polyethylene.

1 17. The cartridge of claim 12, wherein the  
2 nicotine-impermeable barrier comprises forming said  
3 housing of a copolymer of acrylonitrile and methyl  
4 acrylate.

1 18. The cartridge of claim 12, wherein the  
2 nicotine-impermeable barrier includes forming the  
3 passageway barrier portions of aluminum foil.

1 19. The cartridge of claim 18, wherein the aluminum  
2 foil includes a coating on at least one side of a  
3 copolymer of acrylonitrile and methyl acrylate.

1        20. The cartridge of claim 12, wherein the  
2        nicotine-impermeable barrier comprises covering said  
3        cartridge housing with a layer of aluminum foil.

1        21. The cartridge of claim 20, wherein the aluminum  
2        foil includes a coating on at least one side of a  
3        copolymer of acrylonitrile and methyl acrylate.

1        22. The cartridge of claim 12, wherein the portion  
2        of the passageway inside said passageway barrier portions  
3        is oxygen-free.

1        23. The cartridge of claim 22, wherein the portion  
2        of said passageway inside said passageway barrier  
3        portions is filled ~~with~~ inert gas.

B        24. The cartridge of claim 23, wherein said inert  
1        2        gas is nitrogen.

1        25. The cartridge of claim 13 and further including  
2        a mouthpiece comprising:

3            a) an elongated passageway section with  
4        openings at both ends;

5            b) one end of the passageway section adapted  
6        to be received in the mouth of the user;

7            c) the other end of the passageway section  
8        including a cartridge with an inner surface adapted  
9        to receive and hold said cartridge housing within  
10      the passageway, and the mouthpiece, passageway and  
11      cartridge communicating with each other; and

12          d) said other end of the mouthpiece includes  
13      a sharpened end around the periphery for penetrating  
14      said penetrable passageway barrier portions.

1       26. The cartridge of claim 25 and further including  
2       a dispenser comprising:

3             (a) a molded plastic dispenser containing a  
4               number of compartments and a tray;  
5             (b) said compartments are adapted to  
6               accommodate cartridges;  
7             (c) said tray is adapted to accommodate a  
8               mouthpiece; and  
9             (d) a sharpened tip, for penetrating the  
10              penetrable passageway barrier portions, is  
11              located at one end of the tray.

1       27. A method of preparing a cartridge for a  
2       nicotine inhaler, comprising the steps of:

3             providing a cartridge housing formed at least  
4              in part of a nicotine-impermeable material with a  
5              passageway through said housing so that a fluid stream  
6              can flow through said passageway;

7             loading a nicotine reservoir under oxygen-free  
8              conditions with a measured amount of nicotine in a form  
9              that will allow nicotine vapor to be released into a  
10             fluid stream passing around or through the reservoir;

11            maintaining the loaded reservoir in an oxygen-  
12            free environment;

13            introducing the loaded reservoir into said  
14            cartridge housing under oxygen-free conditions; and

15            sealing the loaded reservoir within the passageway  
16            by way of nicotine-impermeable barriers which include  
17            passageway barrier portions for sealing the passageway on  
18            both sides of the reservoir, at least said passageway  
19            barrier portions being penetrable for opening said  
20            passageway to the atmosphere.

1       28. The method of claim 27, wherein the nicotine-  
2       impermeable material comprises a copolymer of  
3       acrylonitrile and methyl acrylate.

1        29. The method of claim 27, wherein the nicotine  
2 reservoir comprises a porous polymer plug.

1        30. The method of claim 29, wherein the porous  
2 polymer plug comprises polyethylene.

1        31. The method of claim 27, wherein the nicotine is  
2 in the form of a solution.

1        32. The method of claim 31, wherein the nicotine  
2 solution comprises a solution of nicotine, menthol and  
3 ethanol.

1        33. The method of claim 32, wherein the ratio of  
2 nicotine to menthol to ethanol is about 10:1:120.

1        34. The method of claim 27, wherein the step of  
2 loading further includes the steps of:

3              loading the nicotine reservoir into a vacuum  
4 chamber;

5              creating a negative pressure within said  
6 chamber;

7              adding a nicotine, menthol, ethanol solution  
8 into said negatively-pressured chamber; and

9              removing said loaded reservoirs from said  
10 chamber in an oxygen-free environment.

1        35. The method of claim 27 or 34, and further  
2 including the step of sealing the loaded reservoirs in an  
3 inert gas atmosphere.

1        36. The method of claim 27 or 35, wherein the inert  
2 gas comprises nitrogen.

1        37. The method of claim 27, wherein the nicotine-  
2 impermeable barrier comprises aluminum foil.

1       38. The method of claim 37, wherein the aluminum  
2       foil includes a coating on at least one side of a  
3       copolymer of acrylonitrile and methyl acrylate.

1       39. The method of claim 27 and further including  
2       the step of evacuating oxygen from the interior of the  
3       cartridge at the time of sealing.

1       40. The method of claim 27, and further including  
2       the step of introducing an inert gas within the interior  
3       of the cartridge at the time of sealing.

1       41. The method of claim 40, wherein the inert gas  
2       comprises nitrogen.

1       42. The method of claim 27, and further including  
2       the step of heat sealing the passageway barrier portions  
3       to the cartridge housing.

add  
A1